

Patents

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hugh C. Gardner et al.

Serial No. 10/701,519

Filed: November 6, 2003

For: Secondary Carpet Backing and Carpets

Art Unit: 1771

Examiner: Cheryl Ann Juska

Confirmation No.: 7372

DECLARATION OF UNEXPECTED RESULTS PURSUANT TO 37 C.F.R. § 1.132

Commissioner for Patents
Washington, DC 20231

Sir:

I, Hugh C. Gardner, residing at 2754 Long Lake Drive, Roswell, Georgia, and being duly warned, hereby declare and say:

1. I am submitting this declaration in response to the telephone interview that was conducted between my lawyer and Examiner Juska on September 7, 2005 and to establish the following:

(A) the claimed secondary carpet backing comprising a woven fabric having a flat weave construction of warp tapes and multifilament picks with an average of about 12 to about 24 warp tapes per inch providing 50 to about 100% theoretical warp coverage but less than full effective warp coverage and with an average of about 10 to about 20 multifilament picks per inch, the flat weave construction comprising a plain weave of a single layer such that the fabric has a weight of about 1.5 to about 7 osy and average air permeability of at least about 250 ft³/min./ft.², determined according to ASTM D-737 with a pressure differential equal to 0.5 inch water, the secondary backing increases at least one of dimensional stability and delamination resistance of a carpet with the secondary backing, as set forth in amended independent Claim 1 of this patent application;

(B) the aforementioned claimed parameters for the inventive secondary backing are not taught by the prior art individually or in combination, especially by U.S. Patent No. 6,435,220 issued in

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the name of Smith et al. (hereinafter, the "Smith '220 reference"); U.S. Patent No. 6,060,145 issued in the name of Smith et al. (hereinafter, the "Smith '145 reference"); and the Applicant's alleged prior art; and

(C) the aforementioned claimed parameters for the secondary backing yield unexpected results to those of ordinary skill in the art.

Background on Declarant/Inventor:

2. I was awarded a Bachelor of Science degree in Chemistry from Rensselaer Polytechnic Institute in 1968, a Master of Science degree in Chemistry from Indiana University in 1970, and a Ph.D. degree in Chemistry from Indiana University in 1975.

3. Since 1991, I have been employed by Amoco Fabrics and Fibers Company ("Amoco") of Austell, Georgia. Amoco has now sold this business to Propex Fabrics Inc. of Georgia ("Propex"). Propex makes and sells fabrics that are used as primary and secondary backings for carpets, and in construction and packaging applications. I am currently Manager of Product Development and have held that position since 2001, when the business was owned by Amoco.

4. My responsibilities include supervising engineers, scientists, and process specialists who develop new products and provide technical support for all of Propex's product lines. From 1991 until my current position, I held positions as Research Associate and Manager of Technical Services, with direct and supervisory responsibilities related to new product development and technical support for both Amoco's and Propex's product lines. Before being employed by Amoco, I was employed by Amoco Performance Products, Inc., of Alpharetta, Georgia, as Director of Advanced Composites Research and Development. In that position my responsibilities included supervising scientists and engineers who developed thermoplastic and thermoset composites for aircraft, aerospace, sporting goods, and ordnance applications.

5. I am a current member of several technical committees of the Carpet and Rug Institute, which is a leading trade association for the United States carpet industry, and of the Research Advisory Committee of the Georgia Textile Manufacturer's Association. I am, and for approximately thirty-five

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years have been, a member of the American Chemical Society.

6. I am a sole or joint inventor of about forty United States Patents in the fields of advanced thermoset composites and prepregs, their components and applications, and synthetic fabrics for carpet backing and industrial applications.

7. I consider myself to be one of ordinary skill in technical fields related to synthetic carpet backings, carpets with synthetic backings, and their manufacture. I am making this declaration as one of ordinary skill in the art for those fields.

8. I am a joint inventor of United States Patent Application No. 10/701,519 that was filed on November 6, 2003 and was published on July 22, 2004 as U.S. Patent Application Publication Number 2004/0142142 (the "Published Application"). I have read a copy of the Office Action of the United States Patent and Trademark Office mailed on June 2, 2005 (the "Office Action"), and understand all pending claims of the Published Application have been rejected. I understand that the Smith '145 reference remains the Examiner's basis for rejecting the claims as amended in this patent application. Meanwhile, the Examiner has acknowledged during a telephone interview with my lawyer on September 7, 2005 that the rejection based on the Smith '220 reference and the Applicants' alleged prior art will likely be withdrawn in view of the currently amended claims.

The Examiner's Rejection based on the Smith '145 Reference

9. The Examiner alleges that the Applicants' claimed invention, that includes specific ranges, is obvious because the Applicants invention boils down to only an optimization of result effective variables. The Examiner admits in the Office Action that a showing of unexpected results may convince the Examiner that the claimed invention is novel and unobvious.

10. Specifically, the Examiner states the following in section 14 of the June 2, 2005 Office Action:

"Smith '145 discloses a modified secondary backing comprising a conventional secondary backing scrim and a fiber batt needled thereto (abstract and col. 8, lines 46-52). The preferred conventional secondary backing comprises a leno wave of 16 warps/in by 5 picks/in (col. 13, line 64-col. 14, line 1). However, Smith '145 teaches other fabrics having

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different counts and/or weaves, such as plain, satin, or twill weaves, are also within the scope of the [Smith '145] invention."

"...While Smith '145 does not exemplify any of these other embodiments, it is argued that the presently claimed invention is obvious over Smith '145 disclosure. Specifically, one skilled in the art readily understands the relationships between yarn denier or width, yarn count, and fabric weave to the properties of basis weight, permeability, and coverage. For example, one skilled in the art understands an increase in yarn count produces an increase in basis weight and coverage, while producing a decrease in air permeability. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In Re Boesch, 205 USPQ 215. Short of showing unexpected results, it is argued that the claimed invention is readily obvious to one skilled in the art as an optimization of result effective variables. Therefore, claims 1-9 are obvious over the known prior art."

11. The Examiner admits that the Smith '145 reference may suggest an isolated teaching of a plain weave construction and some isolated parameters not connected to the plain weave construction such as a number of warp tapes per inch and multifilament picks per inch that could fall within the ranges being claimed. But these isolated suggestions of ranges that are not connected with a plain weave construction of the Smith '145 reference constitute subject matter that does not exist in reality. Further, the Smith '145 reference does not provide a teaching of a plain weave that is a single layer. Instead, the Smith '145 reference teaches a combined or integrated layer of a secondary scrim and fiber batt. See Smith '145 reference, column 13, lines 28-32 and the first paragraph in section 14 of the Examiner's Office Action noted above.

12. It is my understanding that a patent applicant is only required to compare evidence of unexpected results of the claimed invention with the closest prior art. And it is further my understanding that the closest prior art does not include subject matter that is only theoretical.

13. I remind the Examiner that M.P.E.P. § 716.02(e), Section III, "The Claimed Invention May be Compared with the Closest Subject Matter that Exists in the Prior Art," states as follows:

"Although evidence of unexpected results must compare the claimed invention with the closest prior art, applicant is not required to compare the claimed invention with subject matter that does not exist in the prior art. In re Geiger, 815 F.2d 686, 689, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987) (Newman, J., concurring) (Evidence rebutted prima facie case by

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comparing claimed invention with the most relevant prior art. Note that the majority held the Office failed to establish a prima facie case of obviousness.); In re Chapman, 357 F.2d 418, 148 USPQ 11 CCPA 1966) (Requiring applicant to compare claimed invention with polymer suggested by the combination of references relied upon in the rejection of the claimed invention under 35 U.S.C. 103 "would be requiring comparison of the results of the invention with the results of the invention." 357 F.2d at 422, 148 USPQ at 714.)." [Emphasis supplied.]

14. Therefore, because the combination of a plain weave and the parameters as claimed do not exist in the Smith '145 reference, the combination of parameters as proposed by the Examiner that are merely listed in the Smith '145 patent are not the closest prior art. The closest prior art known to the undersigned Declarant is listed in Table 6 and Table 7 of the originally filed application, found between paragraphs numbered [0066] and [0067] on page 9 and paragraphs numbered [0068] and [0069] on page 10 of the Published Application.

15. The closest prior art set forth in Table 6 of the originally filed application noted above includes a carpet with a commercially available 5-pick leno weave secondary backing (#3865 listed in Table 6) and a carpet with a commercially available 13-pick leno secondary backing (#3808 listed in Table 6). These two carpets were compared to one example of a carpet (Example 19) that comprised a secondary backing of the claimed invention (Example 6). The secondary backing of Example 6 comprised a plain weave fabric with 16 warp tapes per inch providing a 77% theoretical warp coverage that is less than full effective warp coverage and with 15 multifilament picks per inch, and with a weight of about 3.7 osy and average air permeability of about 436 ft³/min./ft.²

16. As evidenced by Table 6, secondary carpet backings made in accordance with the parameters of the claimed invention yield unexpected results such as an increase in dimensional stability or delamination resistance in a finished carpet using the secondary backing. Specifically, as noted in paragraph [0067] on page 9 of the Published Application: "...the carpet of Example 19, with a fabric as in Example 6 as a secondary backing, had higher peel strength than the controls and retained loads equivalent to the carpet with the commercial 5-pick leno weave secondary backing and slightly better in the warp direction than that with the commercial 13-pick leno secondary backing."

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17. Table 7 of the originally filed application sets forth data that also shows the unexpected results of this invention. In particular a comparison of the properties of the carpet in Example 20 with the carpet labeled sample Q shows that the secondary backing of this invention (Example 6) imparted a higher peel strength and improved dimensional stability compared to a leno weave secondary backing with a warp count of 18 ends per inch and a pick count of 15 picks per inch. In this comparison, the secondary backings had different weaves and the same pick count.

18. Paragraph [0069] on page 10 of the Published Application states: "As seen from this example and Table 7, the carpet of Example 20 had a higher peel strength and lower initial strain than any of the comparative samples N-Q." The results in Table 7 where the carpet of Example 20 is compared to the carpet in sample Q are very similar to the results in Table 6, where the carpet in Example 19 is compared with the carpet in Sample M. Sample M had a leno weave secondary backing with a warp count of 18 ends per inch and a pick count of 13 picks per inch.

19. As one of ordinary skill in the art, I declare that the results in Table 6 and Table 7 were unexpected. Specifically, I declare as follows and as noted in paragraph [0014] on page 2 of the Published Application, "Surprisingly, although the flat nature of the woven backings according to the invention provides less surface, texture and apparent openness than leno weave fabrics constructed from similar yarns in similar average counts, dimensional stability and delamination resistance in finished carpets prepared therefrom are comparable or superior to those of carpets made with currently favored leno backings." Specifically, as evidenced by Tables 6 and 7 of the Published Application, the secondary backing of the claimed invention provides delamination resistance that is superior to those of carpets made with conventional leno backings.

Differences and Unexpected Results for Claimed Invention:

20. Because the delamination resistance and/or dimensional stability of the claimed invention are higher than carpets made with conventional leno backings, I believe that the claimed invention of this application is distinct from and unexpected especially in light of the Smith '145 reference. The fact that improved dimensional stability and/or improved delamination resistance can be very often achieved with a flat plain weave having less surface, texture, and apparent openness than a leno weave is very surprising


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and unexpected. As noted above, these unexpected results are reinforced by the data contained in Tables 6 and 7 of the originally filed application.

21. Therefore, as one of ordinary skill in the art and in view of these unexpected results based on the parameters recited amended independent Claim 1, I believe that the claimed combination of elements that includes a woven fabric having a flat weave construction of warp tapes and multifilament picks with an average of about 12 to about 24 warp tapes per inch providing 50 to about 100% theoretical warp coverage but less than full effective warp coverage and with an average of about 10 to about 20 multifilament picks per inch, the flat weave construction comprising a plain weave of a single layer such that the fabric has a weight of about 1.5 to about 7 osy and average air permeability of at least about 250 $\text{ft}^3/\text{min.}/\text{ft.}^2$, determined according to ASTM D-737 with a pressure differential equal to 0.5 inch water, as recited by amended independent Claim 1 of this application is patentable over the Smith '145 reference and the remaining prior art of record. Accordingly, reconsideration and withdrawal of the rejection based on the Smith '145 reference are respectfully requested.

22. I further declare that my statements made herein of my own knowledge are true, and that all statements made on the information and belief are believed to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements and the like so made may jeopardize the validity of this declaration, the subject application or any patent issuing thereon.

Respectfully submitted,



Hugh C. Gardner

27 October 2005
Date